

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of Koji MASAKI

Application No.: 10/598,842

Filed: September 13, 2006

For: RUBBER COMPOSITION AND PNEUMATIC TIRE USING THE SAME

Group Art Unit: 1796

Examiner: Irina Krylova

Confirmation No.: 1122

DECLARATION UNDER 37 C.F.R. § 1.132

I, Shigeaki Matsuo, declare that:

I am a co-worker of Mr. Koji Masaki who is the inventor of the above-captioned patent application.

I received my Master of Engineering from Osaka University in 2001, and I have been employed by Bridgestone Corporation since 2001, where I have been engaged mainly in research and development of new polymers.

I have made the following experiments in order to measure a vinyl bond content of a styrene-butadiene copolymer wherein vinyl bonds in butadiene portions are hydrogenated, as disclosed in Nakagawa et al (JP 2003253051).

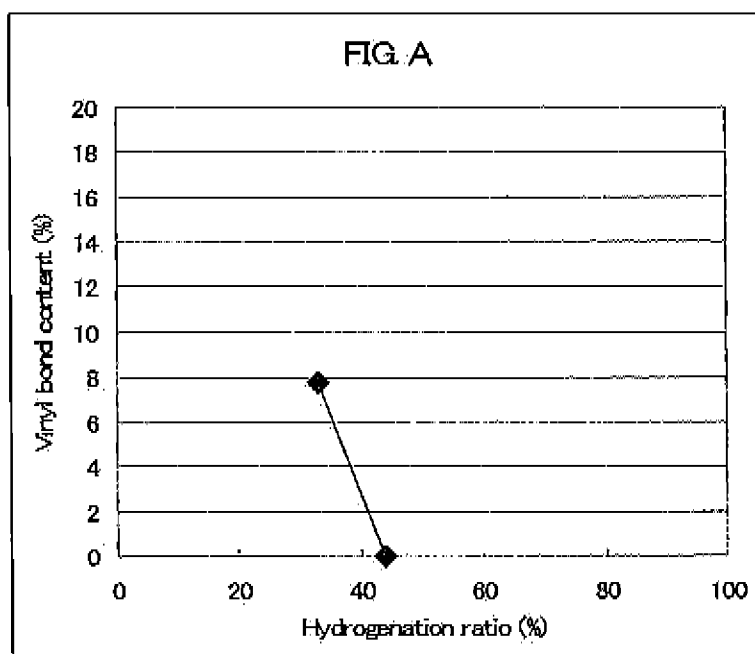
Experimental Procedure

A liquid styrene-butadiene copolymer having a weight average molecular weight of 10,000, a styrene content of 25% by mass and a vinyl bond content in a butadiene portion of 66% is prepared according to a usual method, and further hydrogenated to obtain a partially hydrogenated styrene-butadiene copolymer (a) having a hydrogenation ratio of a double bond in the butadiene portion of 32%.

Further, another partially hydrogenated styrene-butadiene copolymer (b) having a hydrogenation ratio of a double bond in the butadiene portion of 44% is prepared in the same manner as in the partially hydrogenated styrene-butadiene

copolymer (a) except that a hydrogenation condition is changed.

With respect to the resulting partially hydrogenated styrene-butadiene copolymers (a) and (b), a vinyl bond content thereof is measured. As a result, it is revealed that a vinyl bond content of the partially hydrogenated styrene-butadiene copolymer (a) is 7.78% and a vinyl bond content of the partially hydrogenated styrene-butadiene copolymer (b) is 0%. These results are shown in the following FIG. A.



(Summary)

As seen from the above results, even when 44% of the double bonds in the butadiene portions of the liquid styrene-butadiene copolymer are hydrogenated, the resulting partially hydrogenated styrene-butadiene copolymer has a vinyl bond content of 0%.

Thus, these results clearly demonstrates that the styrene-butadiene copolymer (B) having a hydrogenation ratio of a double bond in the butadiene portion of 60% or more and taught by Nakagawa et al (JP 2003253051) has a vinyl bond content of about 0%.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 12/1/09

Declarant: 
Shigeaki Matsuo